

Can my GPS lead me to a sustainable future? The role of technology and lessons from three remote Arctic communities

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BELMONT
F O R U M

Technology, Subsistence, and Change



Photographs of Inuit in Canada showing responses to climate change that affect subsistence. Iqaluit hunters improvise, using boats to maintain access to seal hunting areas in late fall



Hazard avoidance – Ulukhaktok hunters make extra efforts to read weather and ice conditions before and during travel.



Emergency preparedness – Knowledge of how to build an emergency snow house enables hunters to wait out storm events.



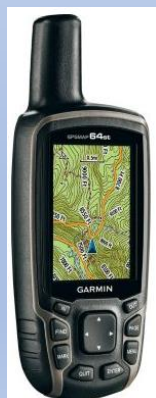
Bushnell Elite G2



1875 Extreme Shallow
by Jetercraft



Facebook



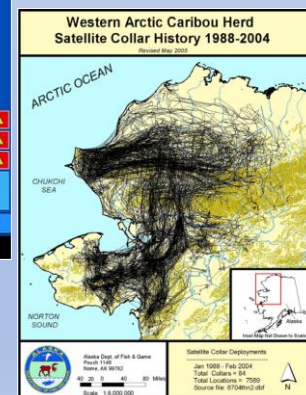
Collared cow caribou



Alaska Department of
Fish and Game



Google earth



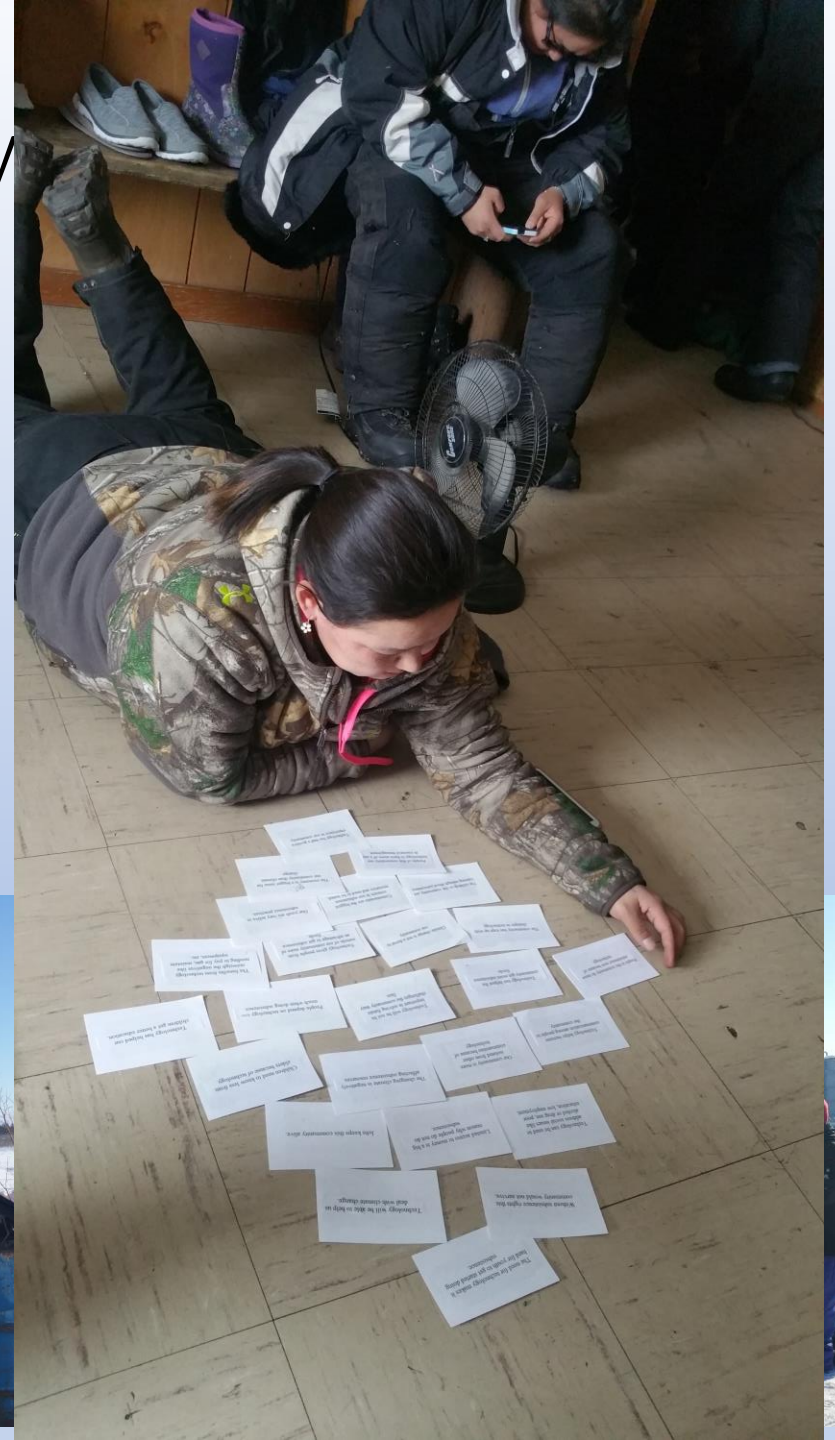
Equipment used by households in 2001-2006

Canada	Greenland	Chukotka	Alaska
Freezer	NA	80%	76%
Rifle or shotgun	74%	57%	83%
Camping tent	70%	51%	66%
Outboard motor	52%	50%	67%
Other boat	40%	55%	69%
Sewing machine	61%	45%	39%
Fishnets	53%	36%	63%
Snowmachine	82%	14%	82%
GPS, VHF or CB	28%	45%	65%
Sled	69%	17%	52%
4-wheeler or ATV	51%	17%	72%
Float (survival) suit	50%	23%	17%
Chain saw	19%	12%	48%
Ice auger	41%	1%	35%
Truck	27%	4%	39%
Canoe or kayak	30%	3%	7%
Generator	17%	6%	19%
Dog team for hunting or trapping	NA	13%	3%

Source: SLICA

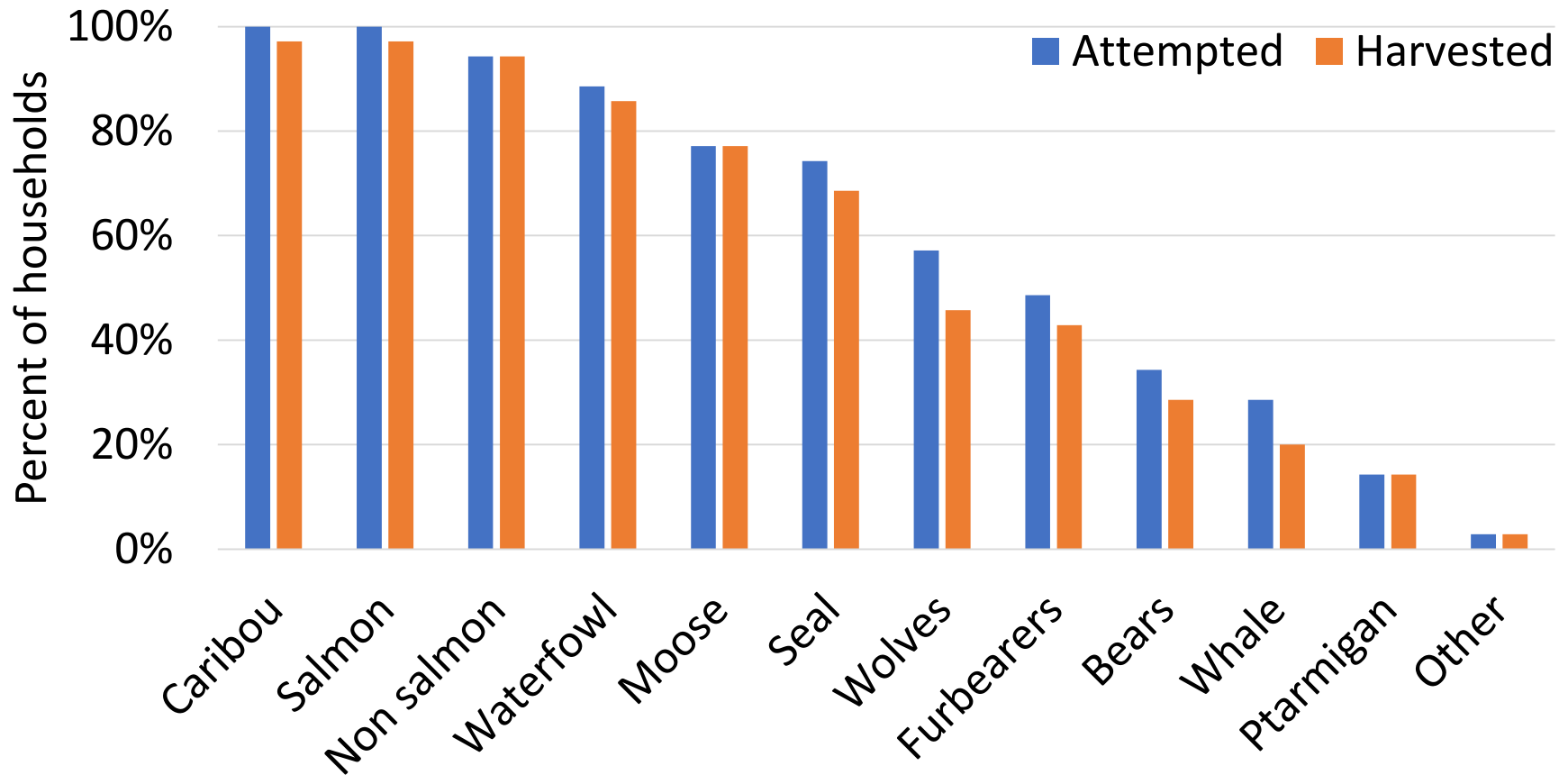
Interviews on Technology

- 35 people interviewed in Brevig Mission, Noatak, and Noorvik during March 2017
- 21 Q-sorts with residents to evaluate values and beliefs regarding technology, climate change, and subsistence



What are people harvesting

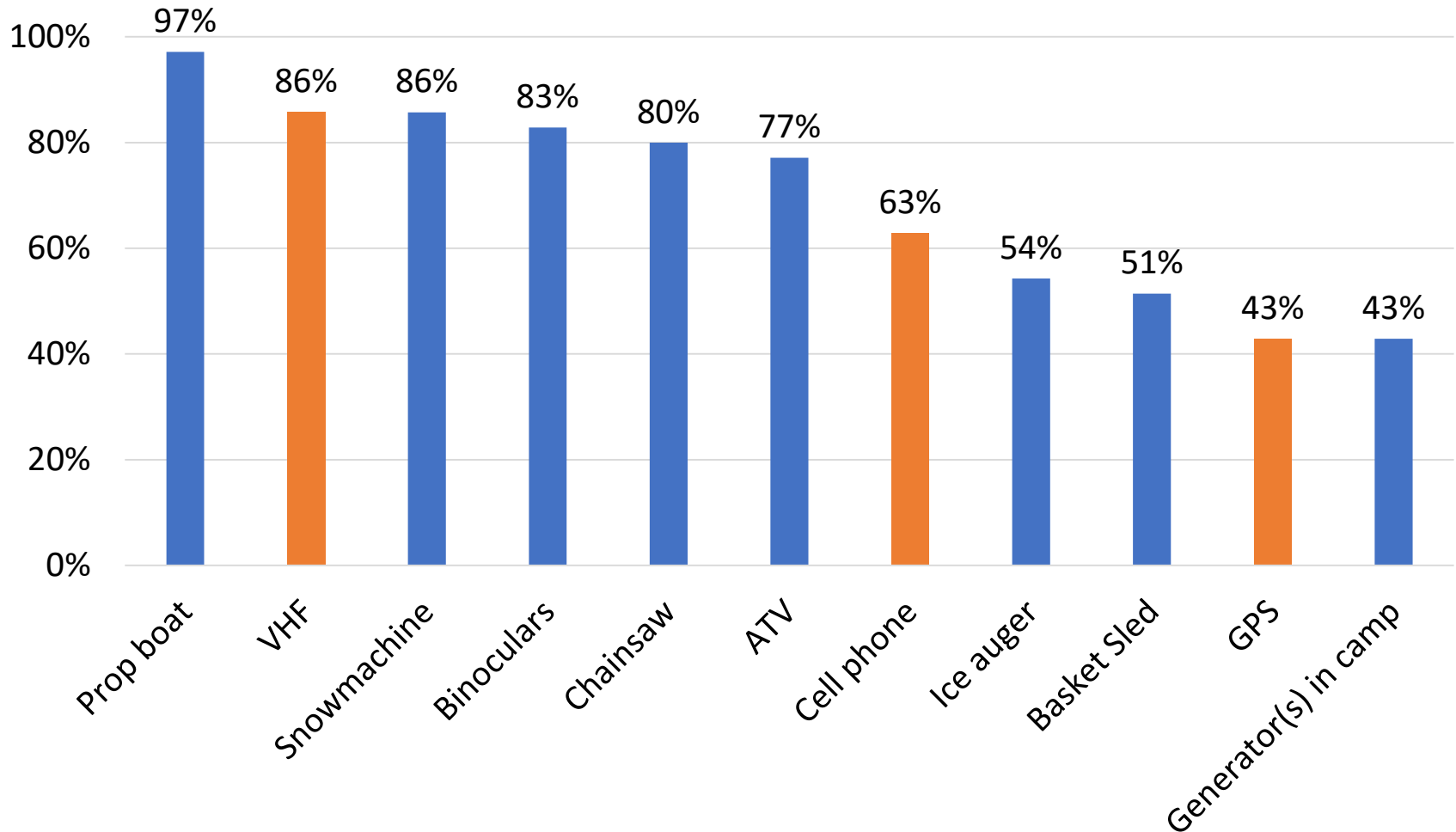
Attempt to harvest vs. harvest



What do people in rural Alaska use for subsistence?



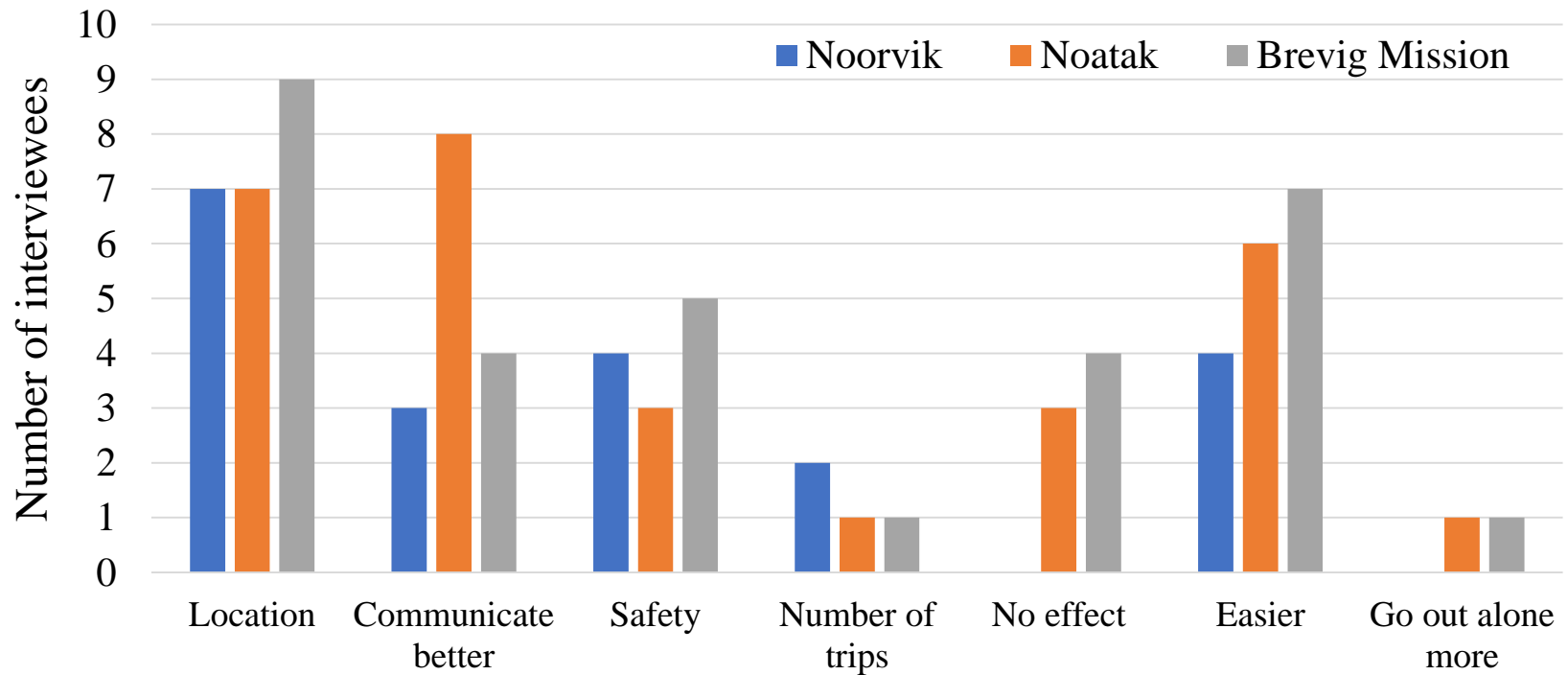
Top 10 technologies





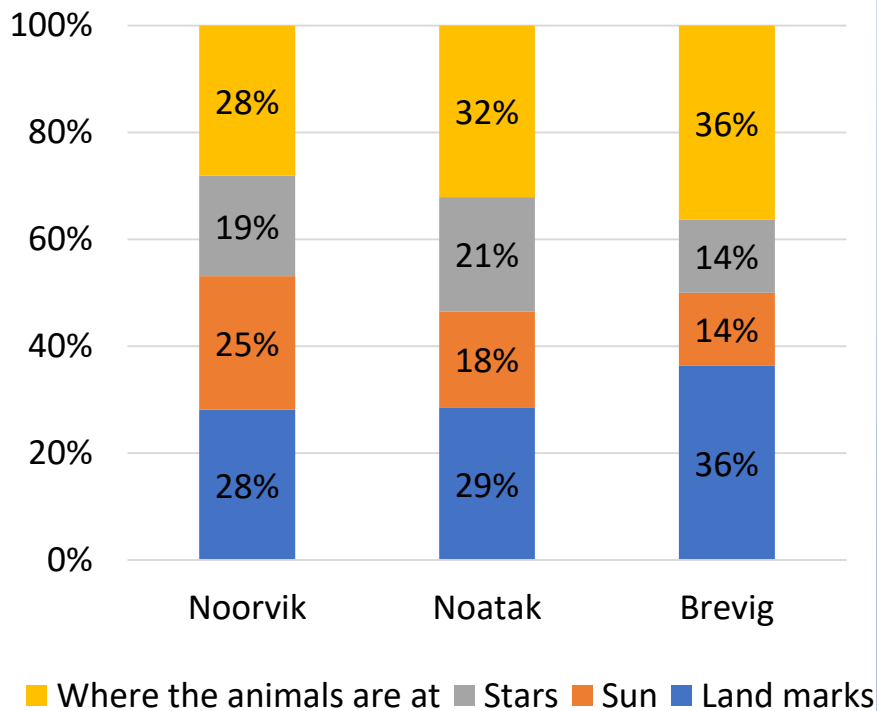


How has technology changed hunting in the last 10 years?

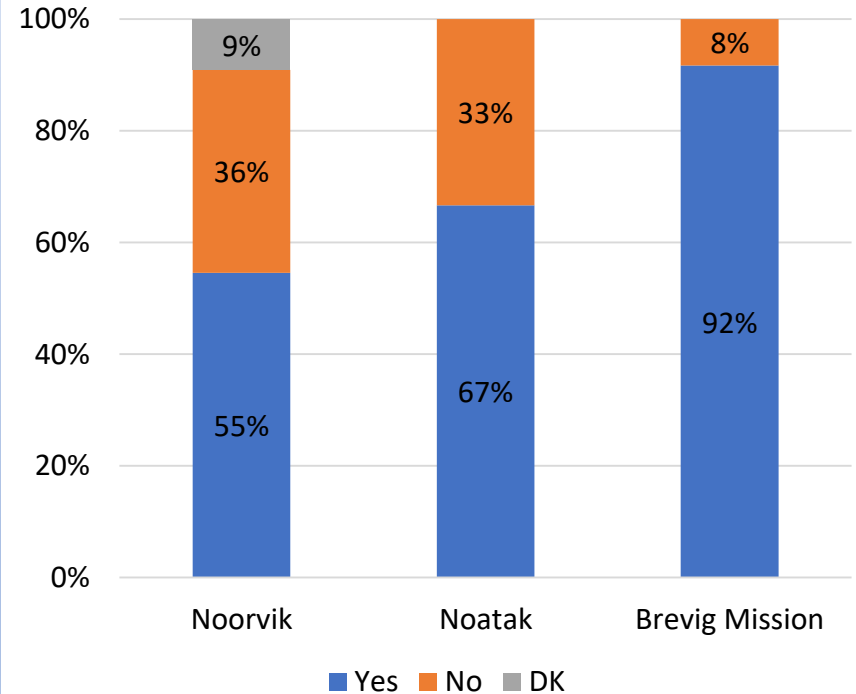


Technology, youth, and elders

What are the things that are still important to know from elders?



Technology cause kids to be less engage in subsistence?



Results

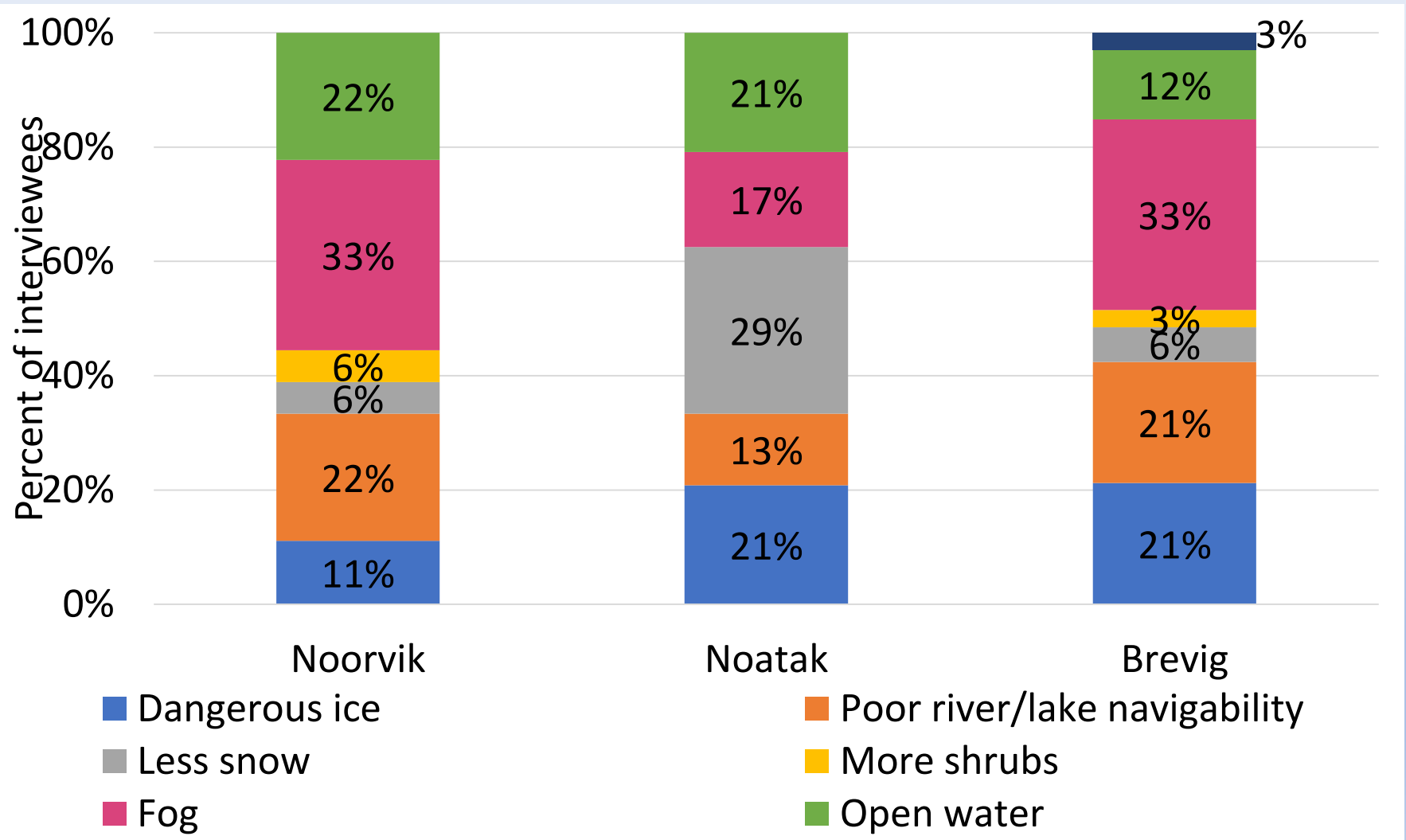
- Technology has helped residents to locate animals (66%), made hunting easier (49%), and increased communication (49%)
- But 60% of people say there are also downsides
 - 34% reporting cost
 - 23% increased vulnerability



Results

- Technology has helped residents to locate animals (66%), made hunting easier (49%), and increased communication (49%)
- But 60% of people say there are also downsides
 - 34% reporting cost
 - 23% increased vulnerability
- Technology can only partial overcome limitations on availability of resources (45%)
- The increase in technology helps with western education for youth in most communities, but has decrease participation in subsistence (71%)
- 49% of people said technology can help them with climate change related problems

What environmental changes can technology help with?

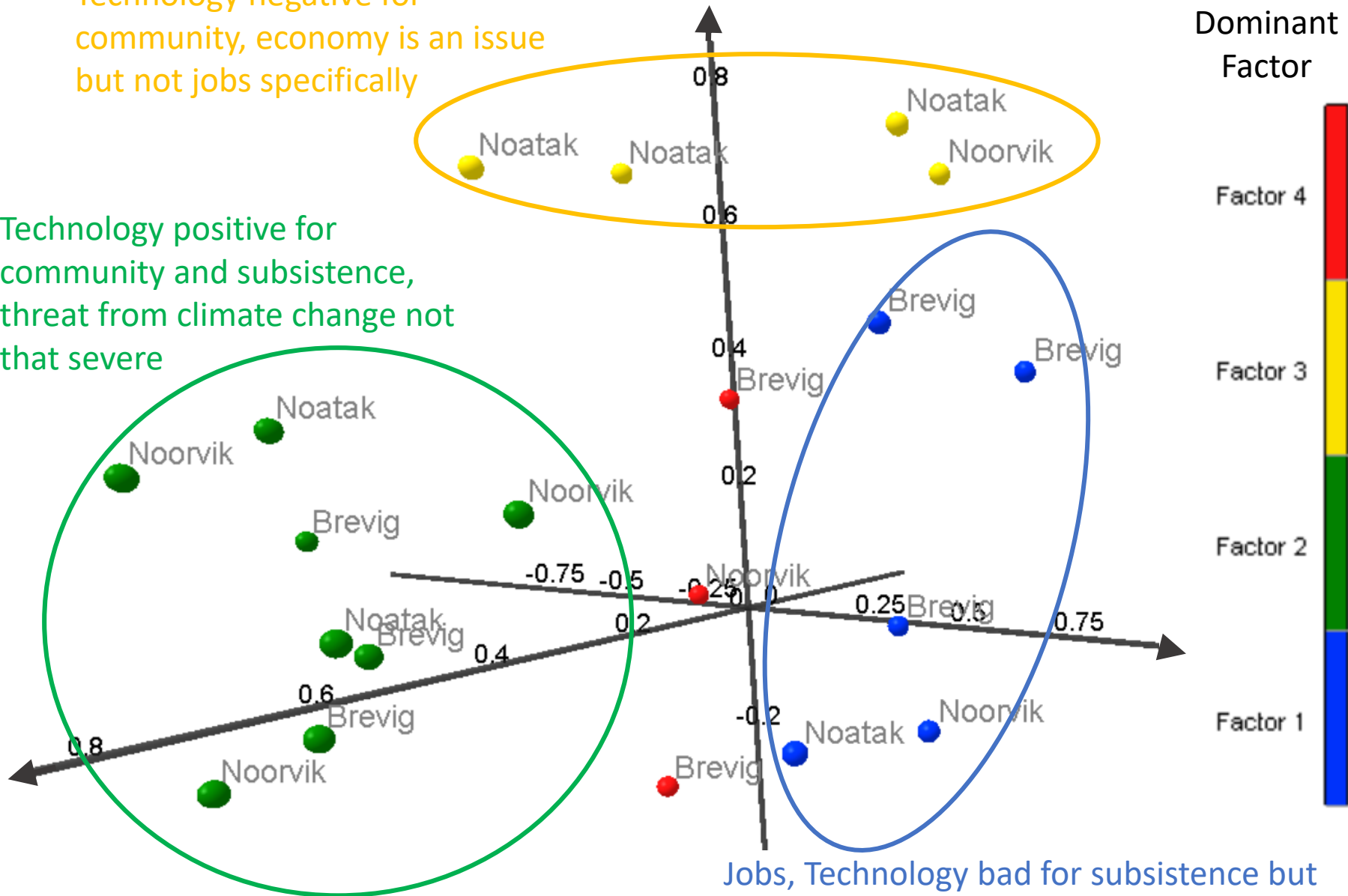


Results from Q-sorts to evaluate values and beliefs regarding technology, climate change, and subsistence

- **Factors 1:** Jobs, Technology bad for subsistence but good for education, neutral on the threat of climate change
- **Factors 2:** Technology positive for community and subsistence, threat from climate change not that severe
- **Factors 3:** Technology negative for community, economy is an issue but not jobs specifically
- **Factors 4:** Subsistence and contaminants are the main concern, climate change is not a threat, technology helps with subsistence but not other issues

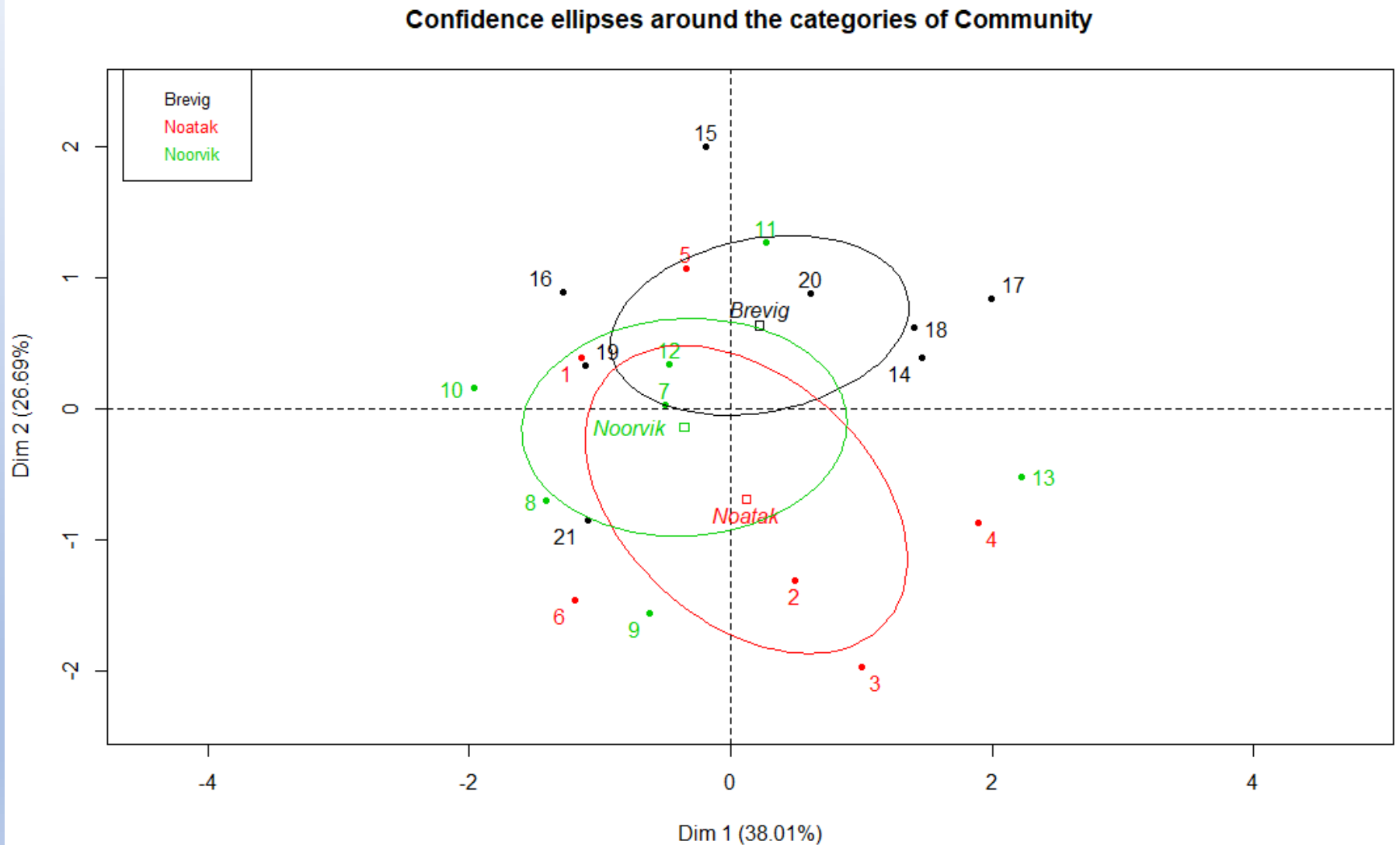
Technology negative for community, economy is an issue but not jobs specifically

Technology positive for community and subsistence, threat from climate change not that severe



Jobs, Technology bad for subsistence but good for education, neutral on the threat of climate change

Slightly more agreement among Noatak and Noorvik, but still a lot of overlap



Key points

- Technology is not having as large of a positive effect on rural Alaska as many would think, but there are ways to improve on how technology influences rural Alaska...
- Given that jobs/economy, education, and subsistence are the top concerns in these three rural Alaska communities we should focus on ways that technology could be used in a positive manner for these issues.
- Hopes that technology can help address climate change related issues regarding subsistence is limited, while maintaining knowledge from elders is still very important

What does it all mean...Can my GPS lead me to a sustainable future?

Changes	Adoption Actions	Role of technology
Increased unpredictability	GPS collars on animals	Monitoring and data sharing
	Develop more accurate weather online tools	Access to information
	Create social media networks	Access to information and social cohesion
Hazardous travel conditions	Trail cameras	Monitoring and data sharing
	Videos and pamphlets	Documenting new knowledge
	Investing in safety equipment	More coverage, access to affordable equipment
Changes in abundance of subsistence resources	Develop monitoring online tools	Access to knowledge
	Create social media networks	Access to knowledge and social cohesion

What does it all mean...Can my GPS lead me to a sustainable future?

Changes	Adoption Actions	Role of technology
Loss of elders/Traditional knowledge	Use digital media to document knowledge	Knowledge transfer
	Online repositories of knowledge, story maps	Knowledge transfer
Lower interest among youth	Video games with learning embedded	Knowledge transfer and have fun while learning
Loss of schools	Online classes	Faster internet speeds allow for increased connectivity
	Home schooling	Faster internet speeds allow for increased connectivity
	Create social media networks	Maintain connections with residents, family who may have left
Increased need for wage incomes	Teleworking	Faster internet speeds allow for increased connection to employers

Thank You

- Thank you to the residents of Noatak, Noorvik, and Brevig Mission
- Belmont Forum Project (NSF # 1534006)
- University of Alaska Anchorage
- University of Tromsø - UiT The Arctic University of Norway.

